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ABSTRACT

The questioning techniques which teachers use when leading a class discussion of a reading assignment can be an essential component of profitable instruction. A brief review of the past 50 years of research on questioning levels indicates a need for attention to the cognitive level of queries as well as to their sequence since investigators have found a high percentage of questions asked by teachers could be classified in the category of rote memory. Unless a teacher is able to shift emphasis to higher cognitive levels, expecting a spirited and thoughtful discussion of a reading assignment may be futile. A model of questioning which takes into account all levels of thought and provides students with a means of digesting prose material is needed. Examples are given which follow a modified version of the Bloom taxonomy, with questions moving from specific facts to broader generalities. A sample sequence moves from questions of knowledge, comprehension, and analysis to questions of evaluation. Suggested guidelines for proper questioning include phrasing questions carefully, not answering one's own question, and allowing wait time for students to prepare answers. (MKM)

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COMPREHENSION AND A MODEL FOR QUESTIONING

Robert A. Lucking

Teachers at all levels are frequently heard to complain about their "dead" classes in which students seem to be verbally inert and unresponsive to the substance of their reading. Blame is often placed on those ubiquitous motivational problems which appear to seep into schools like rain into straw roofs, and little contribution is made to the students' abilities to comprehend their reading assignments. To use John Bormuth's definition (1969), comprehension is "a set of generalized knowledge-acquisition skills which permit people to acquire and exhibit information gained as a consequence of reading printed language" (p. 50). Each time teachers lead a discussion of a reading assignment, they are shaping these comprehension skills by cueing students' attention to specific decoding processes, and questioning is a primary means of developing this behavior.

Although teachers rely upon a variety of classroom activities, most agree that an open debate of the ideas embedded in the students' reading is an essential component of profitable instruction. When students participate freely, they reflect an investment of their own thoughts and feelings which lends to the enjoyment of their learning. Clearly, questions should be straight-forward and varied in nature, but special attention should also be paid to the cognitive level of queries as well as to their sequence. Trivial questions which dwell on the obvious and have no cumulative direction not only provide little useful

CS 202 193

participation, but they may also result in greater student boredom. If students are expected to develop adaptable c[illegible]ding habits, they must be provided with practice in these skills, particularly through the questions they consider each class period.

Although researchers have no conclusive evidence about the nature of successive levels of difficulty of human thought, significant clarification is provided by such devices as the Bloom taxonomy (1956). With this classification scheme and the aid of such works as Norris Sanders' Classroom Questions: What Kind? the teacher can ascertain the level of questions used in discussions. However, Sanders does not deal with sequence of questions, and likewise, Goffe and Deane (1974) outline helpful questioning procedures for English teachers without considering the overall pattern of queries.

The need for such specific attention to questioning levels becomes clear after only a cursory review of the past fifty years of research on this topic. Stevens (1912) found that in the 100 high school classes in English, history, mathematics, modern language, and Latin she observed, teachers asked an average of 395 questions per day. In view of this tremendously large number of questions, she hypothesized that four-fifths of a school day was spent in question and answer recitation. Later research by Haynes (1935) lends evidence to the factually-oriented nature of teachers' questions, as he found that 77 percent of queries in history classes demanded only factual answers. Corey (1940) found similar results as 71 percent of the questions asked by high school teachers in his study required factual information.

In more recent years, investigators have employed other forms of classification techniques to gather more inclusive data. Gallagher (1965) developed his categories around Guilford's structure of the intellect (1956). He applied this system to the teachers' question in 10 junior high school English and social studies classes for gifted students and found that 61 percent of the questions asked were of a rote or cognitive memory category. He also noted a high degree of congruence between the level of questions asked by teachers and the student response. Teachers were inadvertently causing their students to limit a great deal of their thinking to factual matters and were attending largely to recitation of recalled information.

James Hoetker (1968) similarly found extremely high rates of questions per minute in English classes in his study. Of the teachers in the "better" schools he observed, the mean questioning rate during substantive talk was 5.17 questions per minute, or a teacher question every 11.8 seconds. In a low ability ninth grade class the bombardment rate of questions rose to 10.7 per minute, or a question every 5.6 seconds. It is clear that under these conditions, students can do little more than bark brief responses to the barrage of questions fired at them, and there can be little wonder why students are reluctant to participate in such meaningless forms of interaction. The discussion of this sort can give little range to pursuing important concepts because emphasis is given to memorization, trivia, and minutia.

Unless the teacher is able to shift the emphasis of questions to higher cognitive levels, expecting a spirited classroom discussion

may be futile. Although these higher order questions become less amenable to absolute answers, they do not lend themselves to a debate of crucial elements of the topic, which is precisely the kind of discussion that has the potential to develop into a fruitful exchange of ideas. Yet there is some danger in dealing exclusively with complex questions; an entire series of abstract probes may mislead students more than aid their understanding of their reading. Thus, a model of questioning if needed which takes into account all levels of thought and provides students with a means of digesting prose material they have encountered. Order is of special concern here to establish the movement of questions from specific facts to broader generalities, or vice versa; as S. I. Hayakawa states in Language in Thought and Action (1972):

> The interesting writer, the informative speaker, the accurate thinker, the sane individual, operate on all levels of the abstraction ladder, moving quickly and gracefully and in orderly fashion from higher to lower from lower to higher--with minds as lithe and deft and beautiful as monkeys in a tree (p. 190).

With this idea in mind, a consistent questioning model can be established which calls upon progressive, hierarchically-arranged levels of thought. Some examples of questions which develop three distinct concepts in the area of literature are provided. The questions are classified according to a modified version of the Bloom taxonomy.

Questions for One Class Period After Reading the Short Story

"A Stay at the Ocean"

Concept One

1. Who are the main characters in this story? (Knowledge)

2. Where does the story take place, or what is the setting? (Knowledge)

3. Of what general social class are the Bells? (Comprehension)

4. What characteristics begin to become apparent in these people when they find the tide has withdrawn? (Analysis)

5. Why do people respond this way to natural events that are out of the ordinary? (Analysis)

6. Is this an accurate portrait of human response to such incidents? (Evaluation)

Concept Two

7. What do the Bells decide to do when they find that the tide has receded? (Knowledge)

8. How do they prepare for their adventure? (Comprehension)

9. What news or rumor do they hear about regarding the tide? (Comprehension)

10. Where have we seen such uses of foreshadowing before? (Application)

11. What is the nature of the statement the author is making about how we respond to nature? (Analysis)

12. Does this story realistically reflect the way we view unusual changes in nature? (Evaluation)

Concept Three

13. What is the title of this piece? (Knowledge)

14. How does it apply to the events of the story? (Application)

15. What dual meanings might the titel suggest? (Analysis)

16. What clues were we given to what happens at the end of the story? (Analysis)

17. Suggest other situations where people respond thoughtlessly to natural events which are unexpected. (Synthesis)

18. Is man really so short-sighted in his view of his role in nature? (Evaluation)

The questions here follow a progression from simple observations of factual information taken from the students' reading to queries about the significance of these facts. Not every level is touched upon in every sequence, but the progression is clearly established. This practice allows the learners to put basic information into perspective and then proceed to more sophisticated levels of consideration.

These questions should be viewed as initiating questions, which open a dialogue between students and teacher; each one directs the student to consider a particular aspect of the concept. Although they set the tenor and direction of the discussion, teachers may have to ask probing questions as a matter of course. A probing question asks students to elaborate, clarify, or specify some part of their initial response. Such probes might include a specific direction like, "Could you explain a bit more about your idea of the importance of slavery to the economy of the

time? Or they might be more general: "What makes you think this? "Can you explain a bit?" "How is this so?" "Why is this important?" "What evidence might you draw upon to support this?" All of such probing questions are designed to help students clarify their thinking, both for themselves and for the consideration of the rest of the class members.

As the students become involved in the debate of ideas, the teacher may well wish to pursue a sequence of questions in the opposite order, from general to more specific. An example is given:

Questions for a Science Class

1. Are the environmental conditions of this city conducive to human enjoyment and healthy surroundings?	(Evaluation)
2. What plan might you propose which would cause more people to use car pools than they presently do?	(Synthesis)
3. What do you think are some of the motivating forces which cause people to wish to drive by themselves?	(Analysis)
4. How would employer bonuses for the use of car pools affect such behavior?	(Application)
5. What reasons did our book give for the tremendous amount of automobile fumes in the air?	(Comprehension)
6. What are the two most toxic impurities in our air today?	(Knowledge)

Regardless of what direction the line of questioning may take, the sequence should allow the students an opportunity to shape their thoughts carefully and engage in an open, non-threatening dialogue. Reinforcement is particularly important in this process, and it is doubtful

how much reward is felt by students in receiving a simple nod or comments like, "O.K." or "Good." By following the questioning technique outlined here, the teacher can focus on what each student is saying. Summing what the student has stated allows the teacher to give tribute to that person's ideas, perhaps the most significant form of reinforcement possible. By building on each individual's comment, the teacher places emphasis on the student and his contribution; little probably needs to be said of how much we, as human beings, value our own ideas.

The development of sound questioning skills does not come about simply or immediately, and a number of variables affect the success of any series of inquiries. Thus, some general guidelines for proper questioning are listed below:

1. Phrase questions carefully and in terms understandable to the students. Research findings suggest that teachers are often forced to ask two or three versions of the same question before students know what is being asked of them.

2. Don't answer your own question. Frequently a student's brief comment can trigger a line of thought in the teacher, and the temptation is great to expound upon great truths. Such a situation is one of the student cueing the teacher and is only a thin disguise for lecturing.

3. Allow wait time. Adults take, on the average, 14 seconds to respond to analogy questions on standardized tests which require only a written mark. However, teachers ask students to respond in full sentences in front of their peers. An appropriately challenging question demands time to think.

4. Don't ridicule a wrong answer. Students' attitudes toward classroom participation are shaped largely by the teacher.

5. Don't ask the obvious. Some questions are so mindless that it is embarrassing to answer them: "How do you think the American soldiers felt when they were told they could return home?"

6. Encourage an open debate with students asking questions of each other and responding to each other's comments.

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